

INTERIM

SUPPLEMENTAL SITE CHARACTERIZATION / CLEANUP REPORT

at the

WELLS & WADE FRUIT COMPANY Birchmount facility Wenatchee, Washington

MEMBER

July 1994

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by

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BIRCHMOUNT ORCHARDS FACILITY Wenatchee, Washington

INTERIM

SUPPLEMENTAL SITE CHARACTERIZATION/ CLEANUP REPORT

Prepared for

Wells and Wade Fruit Company

Prepared by

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CONTENTS

EXECUTIVE SUMMARY

1.0 1.0.1	PROJECT BACKGROUND/SITE DESCRIPTION Location	1-1
TIVIT	A. Site Name	1-1
	B. Street Address and Location	1-2
	C. Phone Number	1-2
	D. Map of Site Location	1-2
	E. Site History and Land Use	1-2
1.0.2	Topography and Geology	1-3
	A. Site Diagram	1-3
	B. Site Soil Types	1-2
1.1	RELEASE INFORMATION/SITE CHARACTERIZATION	1-3
1.2	PREVIOUS INVESTIGATIONS	1-3
1.3	SELECTION OF CLEANUP STANDARDS	1-4
1.4	EXPLANATION OF REMEDIAL ACTIONS TAKEN AND	
	RATIONALE FOR SELECTING THE REMEDIAL ACTION	1-4
1.5	INSTITUTIONAL CONTROLS	1-4
1.6	SAMPLING AND ANALYSIS	1-5
	A. Field Screening techniques	1-5
	B. Standard Operating Procedures	1-6
	C. Laboratory Reports	1-6
	D. Sample Locations	1-6
	E. Sample Depths and Locations	1-6
	F. Sampling Rationale	1-6
	G. Soil Profiles	1-6
	H. Depth to Groundwater	1-6
	I. Residual concentrations above MTCA Method A	1-6
2.0	INTRODUCTION	2-1
2.1	GROUNDWATER INVESTIGATION	2-1
2.1.1	Groundwater Impact Confirmed	2-1
	A. Potentiometric Surface Map	2-1
	B. Geologic Cross-Section	2-2
2.1.2	Groundwater Treatment	2-2

ES-1

2.2	REGULATORY RECORDS/PERMITS A. List of Permits B. List of Federal or State Regulatory Activities	2-2 2-2 2-2
2.3	PETROLEUM MANAGEMENT AND HANDLING A. Substance Identification and Quantities	
3.0	SAMPLING AND ANALYSIS PLAN	3-1
3.1	FIELD INVESTIGATION AND SOIL REMEDIATIO	N SAMPLING 3-1
3.2	SAMPLING PROCEDURE	3-1
4.0	REFERENCES	4-1
TABLES		
1	SUMMARY OF SOIL DATA	following Page 1-7
2	SUMMARY OF GROUNDWATER DATA	following Page 1-7
FIGURES		
1	SITE VICINITY MAP	following Page 1-2
2	SITE PLAN MAP	following Page 1-2
3	POTENTIOMETRIC SURFACE MAP	following Page 1-7
4	BIOREMEDIATION STOCKPILE LOCATIONS	following Page 2-4
B-1	GEOLOGIC CROSS-SECTION LOCATIONS	APPENDIX B
B-2	GEOLOGIC CROSS-SECTION A-A'	APPENDIX B
B-3	GEOLOGIC CROSS-SECTION B-B'	APPENDIX B
APPENDIC	ES	
A	ECOLOGY "FARM EXEMPT" LETTER	
В	SUBSURFACE EXPLORATION DATA	
С	CHEMICAL ANALYTICAL DATA	

EXECUTIVE SUMMARY

This report summarizes the current independent site characterization and remedial activities performed by ERM-EnviroClean-NW (EC-NW) at the Birchmount Orchard facility in Wenatchee, Washington. Additional remedial action reports will be submitted when completed.

This Supplemental Site Characterization study was designed to:

- Further evaluate the extent and magnitude of petroleumimpacted soil and groundwater identified in previous studies by completing: (1) two soil borings and (2) five groundwater monitoring wells at the site.
- Evaluate hydrogeologic conditions at the site.

The results of the study indicate:

- Petroleum concentrations greater than the MTCA Method A levels in soil and groundwater at the site are within a limited area extending less than 100 feet southeast of the former location of the UST system. The only petroleum constituent with sample concentrations greater than the MTCA Method A cleanup levels is gasoline-range hydrocarbons (TPH-G).
- Groundwater flow from the former UST system area appears to be in a southwesterly direction.
- ERM-EC recommends a remedial pilot test be conducted. The results of this test will be used to evaluate available remedial options for the groundwater at the site.

1.0 PROJECT BACKGROUND/SITE DESCRIPTION

On 22 November 1993, an Interim Status Report, concerning three underground storage tanks (USTs) and corresponding site assessment and interim remedial activities, was submitted to the Washington State Department of Ecology (WDOE) Central Region Toxics Cleanup Program in Yakima [Sage Earth Sciences, Inc. (Sage), 1993]. WDOE reviewed the report and determined that the tanks were "farm exempt" from WDOE UST regulations and that reporting was not required (*Appendix A - Ecology "Farm Exempt" Letter*).

The removed USTs include one diesel tank and two gasoline tanks. The capacity of each of these tanks was 550 gallons; the age of the tanks is unknown. During removal, the USTs were observed to be corroded with holes and pitted surfaces.

For clarity and ease of agency review, this report is in general accordance with the WDOE Draft Remedial Action Plan Report format (March 1994).

Following removal of the three former USTs at the site, petroleumaffected soil was excavated and replaced by clean backfill. Samples from the excavation indicated that petroleum hydrocarbon concentrations above MTCA-Method A cleanup levels remained in soils at the bottom of the excavation. Two soil borings were drilled by Sage in 1993 to determine the vertical extent of petroleum-impacted soil beneath the excavation. These data confirmed that gasoline-range hydrocarbons had impacted the soil beneath the site.

Since February 1994, EC-NW has provided additional characterization and cleanup services at the site. Additional borings and monitoring wells were installed and data were evaluated.

1.01 LOCATION

A. Site Name

The Birchmount Orchard facility is owned by Wells & Wade Fruit Co.

B. Street Address and Location

The Birchmount Orchard facility is at 3717 Crestview, Wenatchee, Washington. The mailing address of the current business operation at the site is: Wells & Wade Fruit Co., P.O. Box 259, Wenatchee, Washington 98807. The site is approximately one mile north of U.S. Highway 92 on Crest-view Road (*Figure 1, Site Vicinity Map*). The facility's boundaries are Crestview Road on the west, orchard areas owned by Wells & Wade to the north and east, and American Fruit Company Road to the south.

Structures at the site include an office building, maintenance shop, and equipment storage buildings. *Figure 2*, *Site Plan Map* shows site features, including underground electrical lines, the location of former USTs, and the new (replacement) UST system.

C. Phone Number

The telephone number for the facility is (509) 886-0440.

D. Map of Site Location

See Figure 1, Site Vicinity Map.

E. Site History and Land Use

The site has been owned by Wells & Wade Fruit Company since its initial development. Site activities that may have contributed to petroleum impacts to soil and groundwater at the site are limited to the former USTs removed from the vicinity of boring B-4 (*Figure 2*). Adjacent land use consists of orchards and scattered residences.

Wells & Wade Fruit Company operates an agricultural orchard at the site where fruit trees are planted, grown and harvested. As a part of this operation, USTs are used to store fuel for agricultural equipment. The current UST is a vaulted system at the location shown on *Figure 2*.

1.0.2 TOPOGRAPHY AND GEOLOGY

Topography slopes moderately to the south within the facility area . Intermittent drainage in this semi-arid region is along shallow ditches and gullies. When present, surface water drainage flows toward the High Line Canal, approximately 0.7 miles south of the site. The Wenatchee River is approximately 1.5 miles south and the Columbia River is approximately 2 miles east of the site. Up to 50 feet of unconsolidated silt, sand, and gravel deposits overlie bedrock in the site vicinity. Bedrock in the site vicinity consists of arkosic sandstone and siltstone.





A. Site Diagram

See Figure 2, Site Plan Map.

B. Site Soil Types

Descriptions and classifications of soils encountered during drilling at the site are included in the boring logs (*Appendix B*). The general stratigraphy of the site area and soil types observed during drilling activities are summarized as follows per the Unified Soil Classification System (USCS):

- 0-4 feet medium dense, brown silt and some fine sand (ML).
- 4-8 feet medium dense, light gray silt and fine to coarse-grained sand (ML to SP).
- 7-9.5 feet medium dense, light brown fine to coarse sand and some silt (SM).
- 9.5-25 feet very dense, light brown fine to coarse sand with varying amounts of fine gravel (SP).
- 25-32 feet very dense, light brown fine to medium sand and trace silt (SP).
- 32-55 feet very hard, light to reddish brown silt, none to some fine sand, some interbedded lenses of fine sand and weathered bedrock (ML).

1.1 RELEASE INFORMATION/SITE CHARACTERIZATION

Two gasoline USTs and one diesel UST were removed from the site in December 1992 by Sage, discussed below.

1.2 PREVIOUS INVESTIGATIONS

In the course of removing USTs, Sage discovered soil suspected to have been impacted by a petroleum release (Sage November, 1993). Sage sampled the soil and the laboratory results confirmed the presence of hydrocarbon-impacted soil.

Sage excavated in the vicinity of the former USTs to a depth of approximately 25 feet and temporarily stockpiled approximately 590 cubic yards of petroleum-impacted soil. No groundwater was

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encountered in the excavation. Two soil samples collected from the bottom of the excavation contained concentrations of gasoline-range hydrocarbons greater than the MTCA Method A soil cleanup level. Sage backfilled the excavation with clean soil because the available equipment could not excavate deeper, the remaining impacted soil volume appeared to be localized and minor, and the excavation was too deep to safely leave open.

To characterize the vertical extent and nature of the remaining impacted soil, Sage subsequently collected soil samples from borings drilled into and beneath the backfilled soil in the excavation. However, one of these borings unexpectedly encountered water. Relevant information from these studies are included with the site characterization/sampling described in *Section 1.6*, below.

1.3 SELECTION OF CLEANUP STANDARDS

Washington State Model Toxics Control Act Method A soil and groundwater cleanup standards are currently targeted as the cleanup levels under this remedial action.

1.4 EXPLANATION OF REMEDIAL ACTIONS TAKEN AND RATIONALE FOR SELECTING THE REMEDIAL ACTION

Sage's contractor removed as much of the petroleum-impacted soil from the UST cavity as possible with the on-site excavation equipment, and then backfilled the excavation with imported fill. The hydrocarbon-impacted soil removed from the excavation is currently being treated on-site in three bioremediation pad areas.

1.5 INSTITUTIONAL CONTROLS

Institutional controls, if needed, will be described in the Final Independent Remedial Action Report.

1.6 SAMPLING AND ANALYSIS

To assess the extent of hydrocarbon-impacted soil and groundwater, five groundwater monitoring wells were installed and two additional soil borings were drilled to depths ranging from 35 to 55 feet at the locations shown on *Figure 2*.

A. Field Screening Techniques

Samples collected during drilling were field screened for volatile organic compounds (VOCs) using a photoionization detector (PID). The rationale for using this technique was to: (1) identify areas with elevated concentration of these types of constituents, and (2) to select representative samples for follow-up chemical analysis.

B. Standard Operating Procedures

Hollow-stem Auger Drilling and Soil Sampling

The soil borings were drilled using a hollow-stem auger drill rig. This method of drilling consisted of screwing augers with a hollow stem into the ground using a truck-mounted drill rig. Cuttings were brought to the surface by the rotating action of the auger. Soil samples were obtained by driving a modified Dames & Moore split-spoon sampler at specified depths.

The generalized scope of subsurface exploration completed at the site by ERM-EC is as follows:

- One upgradient and four cross- and down-gradient groundwater monitoring wells were installed near the UST excavation area to determine the groundwater and soil characteristics. These wells were designed to sample water at the water table and extended to depths of about 36 to 50 feet below the ground surface.
- One soil boring (B-4) was drilled to a depth of 40 feet through the UST backfill to compare petroleum impacts to soil and groundwater, if any, with earlier results.
- One soil boring (B-5) was drilled to a depth of 49 feet downgradient of the UST location to determine soil characteristics and obtain a grab sample of groundwater at the boring location.
- Soil samples were collected at 5-foot intervals from the monitoring wells and borings for field screening. Chemical analysis was performed on appropriately selected samples.
- Groundwater wells were developed, sampled and chemically analyzed according to WDOE-recommended guidelines.

C. Laboratory Reports

Laboratory data packages including sample results, QA/QC (quality assurance/quality control) information, and chain-of-custody records are provided in *Appendix C*.

D. Sample Locations

The locations of the monitoring wells and borings are shown in Figure 2.

E. Sample Depths and Results

Chemical analytical results for soil samples collected from the soil and monitoring well borings are summarized in *Table 1*. Chemical analytical results for groundwater samples collected from borings B-4 and B-5 and the monitoring wells are summarized in *Table 2*. Gasoline-range hydrocarbon results from the water samples are summarized on *Figure 2*.

F. Sampling Rationale

Soil samples from the soil and monitoring well borings were selected for chemical analysis based on elevated headspace vapor concentrations, location of the sample in relation to the groundwater table, and/or the location of the deepest soil sample in a boring.

G. Soil Profiles

Soil profiles and sample depths in each monitoring well and boring location are provided on the boring logs in *Appendix B*.

H. Depth to Groundwater

The depth to groundwater at each monitoring well was measured on May 12, 1994. Groundwater elevations are included in *Figure 3*, *Potentiometric Surface Map*.

I. Residual concentrations above MTCA (Method A)

Residual concentrations of petroleum hydrocarbons in some soil and groundwater at the site exceed MTCA Method A cleanup levels at soil boring B-4 and monitoring well MW-3. Chemical analytical results for soil and groundwater samples obtained from these locations are included in *Tables 1* and 2.

SUMMARY OF SOIL CHEMICAL ANALYTICAL DATA SOIL BORINGS AND MONITORING WELLS BIRCHMOUNT ORCHARDS FACILITY WENATCHEE, WASHINGTON TABLE 1

				11 Jacobson Identification(2)	ion(2)					
		97 11	нуагос	arour luerunus (ma/ka)	/	Gasoline-range		13E I X (4)	£ (5	
		Deptin or	Contraction Contraction	Diesel-range	Heavy Oil-range	Hydrocarbons(3)	4			×
Sample	Date	Sample	a fine - a moses	Ludroorhons	Hvdrocarbons	(mg/kg)	۵			
Number	Sampled	(feet)	Hydrocarbons	In you occur a correct	00+	ſ	1		-	
	10,0,0	и Сс	<20	<50	2012		•	•	1	•
B1-S5 (MW-1)	312134	2.23		~50	<100			0	0	-
22-S10 (MW-2)	3/2/94	40.5	N2>		0017	7200	Nc0.0>	7.0		
DO DO MIN 9)	3/3/94	40.5	Detected	DQ>		1	1	•	- 	
12-MM 92-29		и С	~20 ~20	<50		000	~0.050	0.19	<0.050	0.51
B3-S10 (MW-3)	3/3/94	2.00		150(5)	Detected(6)	002	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0	020	2.2
	3/4/94	30.5	Detected	12/2022	001	770	<0.050	9.8 0	20.02	
04-00	101110	10.5	Detected	<20	×100		~0.050	<0.050	<0.050	01.02
B4-S5	10/4/2	2.2.			,	6.22				•
06.33	5/9/94	33	1 1 1			<2.5	1	'		
02-00	E/0/04	43	1	T		L L	•	ı	•	-
B5-43				,	*				10.050	<0.10
R6-8 (MW-4)	5/9/94	8	t			<2.5	<0.050		2000	
DE-22 (MW-4)	5/9/94	33	-	±		<2.5	t	1	-	
	5/9/94	53				<25	<0.050	<0.050	<0.050	21.0V
	5/10/94	33	1			105	•	1	,	-
(c-MW) 22-23				•			4	00	40	20
B7-48 (MW-5)	5/10/94	40				100	2	,		
MTCA Method A soil cleanup level	il cleanup l	evel								

Notes:

(1) Field screening methods are described in Section 1.6 of the report text

(2) By Ecology Method WTPH-HCID
(3) By Ecology Method WTPH-G
(4) By Ecology Method 8020. B = benzene, E= ethylbenzene, T = totuene and X = total xylenes
(5) 71 mg/kg diesel-range hydrocarbons detected in sample B4-S3 by Ecology Method WTPH-D
(6) 76 mg/kg heavy oil-range hydrocarbons detected in sample B4-S3 by Ecology Method WTPH-418.1 Modified

Chemical analytical services provided by Pacific Northern Analytical, Inc. of Redmond, Washington

ppm = parts per million

mg/kg = milligrams per kilogram

- = not tested

SUMMARY OF GROUND WATER CHEMICAL ANALYTICAL DATA SOIL BORINGS AND MONITORING WELLS **BIRCHMOUNT ORCHARDS FACILITY** WENATCHEE, WASHINGTON **TABLE 2**

Sampled (mg/L) B E T X 3/4/94 <0.05 - - - - - 3/5/94 0.12 - - - - - - - 3/5/94 0.12 - - - - - - - - - 3/5/94 13 <0.050 8.2 <1.0 1 1 -	Well/Roring	Date	Gasoline-range Hvdrocarbons(1)		BE (u	BETX(2) (ug/L)		Diesel-range Hydrocarbons(3)
1 3/4/94 <0.05 - - - - 2 3/5/94 0.12 - - - - 3 3/5/94 13 <0.050	Number	Sampled	(mg/L)	В	ш	H-	×	(mg/L)
2 3/5/94 0.12 -	MW-1	3/4/94	<0.05		•		-	<0.15
3 3/5/94 13 <0.050 8.2 <1.0 1 3/4/94 13 - - - - - - 5/9/94 <0.05	MW-2	3/5/94	0.12	3	1	ı		3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
3/4/94 13 - </td <td>MW-3</td> <td>3/5/94</td> <td>13</td> <td><0.050</td> <td>8.2</td> <td><1.0</td> <td>1</td> <td>1</td>	MW-3	3/5/94	13	<0.050	8.2	<1.0	1	1
5/9/94 <0.05 <0.19 <0.050 A Method A cleanup level 1 5 30 40	B-4	3/4/94	13	1	1	1	1	0.63
A Method A cleanup level 1 5 30 40	B-5	5/9/94	<0.05	<0.050	0.19	<0.050	0.51	•
	MTCA Method A cle	anup level	T.	5	30	40	20	-

Notes:

(1) By Ecology Method WTPH-G (2) By EPA Method 8020. B = benzene, E= ethylbenzene, T = toluene and X = total xylenes

(3) By Ecology Method WTPH-D

Chemical analytical services provided by Pacific Northern Analytical, Inc. of Redmond, Washington

ug/L = micrograms per liter mg/L = milligrams per liter

- = not tested



INTRODUCTION

2.0

2.1

2.1.1

Activity during the initial Environmental Assessment and this Supplemental Environmental Assessment were limited to groundwater and/or soil sampling in the following locations (*Figure 2*):

- One upgradient (MW-1) and four cross- and down-gradient groundwater monitoring wells.
- One soil boring drilled to a depth of 40 feet at the site of the UST excavation.
- One soil boring (B-5) to a depth of 49 feet downgradient of the UST location to determine soil characteristics and obtain a grab sample of groundwater at the boring location.

These initial and supplemental assessments were designed to determine the following:

- Lateral and vertical extent of the petroleum-affected soil.
- Magnitude of impacts to groundwater quality.
- Hydrogeologic characteristics of the impacted soil and groundwater.

Data gathered during the initial phase of work were used to determine whether further environmental restoration of site soil and groundwater would be necessary. These data will assist in the development and selection of remedial alternatives if remediation is necessary, and if so, specific remedial designs and cost estimates.

GROUNDWATER INVESTIGATION

A groundwater remediation pilot test is scheduled for June-July 1994 to assist in remedial alternative selection.

Groundwater Impact Confirmed

A. Potentiometric Surface Map

See Figure 3 - Potentiometric Surface Map.

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B. Geologic Cross-Section

The locations of the soil borings and monitoring wells used to construct cross-sections and the locations of the cross-sections are shown in *Figure A-1* in *Appendix B* of this report. Geologic cross-sections A-A' and B-B' are included as *Figures A-2 and A-3*.

2.1.2 Groundwater Treatment

A pilot test will be completed in July 1994 to determine the feasibility of a remediation system for petroleum-impacted groundwater.

2.2 REGULATORY RECORDS/PERMITS

A. List of Permits

Monitoring well and soil boring start cards were obtained from the WDOE by the drilling subcontractors.

B. List of Federal or State Regulatory Activities

None.

PETROLEUM-AFFECTED MATERIALS MANAGEMENT AND HANDLING PRACTICES

A. Substance Identification and Quantities

During the UST removals, a total of 890 cubic yards (cy) of soil were excavated and stockpiled on bioremediation stockpiles lined with plastic. Approximately 590 cy of the soil was affected by petroleum-related compounds. This soil was placed in three bioremediation stockpiles in the site area(*Figure 4*, *Bioremediation Stockpile Locations*). The stockpile of clean soil was used to construct the bioremediation pad grades and berms.

Based on the results of laboratory analysis of stored soils and water from the associated borings and monitor wells, all soil cuttings, decontamination water and purge water associated with the installation of the borings and monitoring wells were added to the appropriate stockpiles (see *Section 2.3.1*).



SAMPLING AND ANALYSIS PLAN

Soil samples were collected during drilling at each of the groundwater monitoring wells and soil borings (*Figure 2*). These samples were submitted to a qualified laboratory for chemical analyses.

3.1 FIELD INVESTIGATION AND SOIL REMEDIATION SAMPLING

Soil borings were drilled to install groundwater monitoring wells and characterize the soil in the vicinity of the former USTs. Sampling details are described below.

SAMPLING PROCEDURE

A truck-mounted, hollow-stem auger, rotary drill rig was used to collect soil samples on five-foot centers, starting at 5-feet below ground. A split-spoon sampler was driven approximately 18-inches deep using a 140-pound hammer dropped 30-inches onto the sampling device. The number of strikes per 6-inch advance for the sampler was noted and is included on the boring logs in *Appendix B*.

A representative portion of the soil in the split-spoon sampler was transferred into a laboratory-prepared glass sample container. Another representative portion was field-screened for organic vapors to assist in selection of samples for follow-up chemical characterization studies.

Soil samples were properly labeled, stored in a chilled container, and hand-delivered to a Washington State-certified laboratory (Pacific Northern Analytical in Redmond, Washington) under proper chainof-custody protocols. A field logbook was maintained to document the field activities, problems encountered and other relevant information regarding the sampling.

3.2

3.0

Sage Earth Sciences, Inc., 1993, Interim Status Report for Closure Site Assessment and Independent Remedial Activities at the Birchmount Orchards Facility, Wenatchee, Washington: Report to Wells & Wade Fruit Company, P.O Box 259, Wenatchee, WA dated November, 1993.

Sage Earth Sciences, 1994, letter to Department of Ecology Central Region: letter is stamped by WDOE 29 November 1993, and a note on the letter dated 12 January 1993 (corrected herein to mean 1994) reads "These tanks are farm "exempt" from Dept. of WDOE Regulations. No reporting is required. Karen (206) 407-7203."

ECOLOGY "FARM EXEMPT" LETTER

APPENDIX A



P.O. BOX 1644, ZILLAH, WA 98953 PHONE (509) 829-6400

DEPARTMENT OF ECOLOGY

11

NOV 2'9 1993

November 22, 1993

Department of Ecology Central Region Toxics Cleanup Program 106 South 6th Avenue Yakima, WA 98902-3387

INTERIM STATUS REPORT FOR CLOSURE SITE ASSESSMENT AND SUBJECT: INDEPENDENT REMEDIAL ACTIVITIES AT THE BIRCHMOUNT ORCHARDS FACILITY, WENATCHEE, WA.

To whom it may concern,

Enclosed, please find one copy of the Interim Status Report for the above referenced site. Please call us at (509) 829-6400 if you have any questions.

ARE

1-12-93

FARM

Respectfully, SAGE BARTH SCIENCES, INC.

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David Princip

Enclos

Project

¢0:

TCC INF

FROM DEPT. OF ECOLOGY REGS. NO REPORTING EXEMPT

TANKS

15 REQUIRED

KAREN

206-407-7203

APPENDIX B

SUBSURFACE EXPLORATION DATA

PROJECT NO.	94027	E	BOR	ING	i LO	
PROJECT NAME	E: Birchmount	E	ORING	IUMBEF	: <u>B</u> -	
LOCATION: We			RINGLO			DATE/TIME COMPLETED: 5/9/94 111
	·					t Drilling TOTAL DEPTH: 49'
	Wells & Wade	Df	RILLING	VETHO	>: <u></u> ∦:	SA SURFACE ELEVATION:
SITE MANAGER	: <u>DC</u>	BIT SZ/HA	MMERM	T/DRO	. <u>30</u>	0#/30" WATER DEPTH:
LOGGED BY:	AWA/DC	SAMPLE	RETRIE	VAL SYS	<u>s: D&</u>	M mod CLOSURE METHOD: Bent. grow
GRA	PHIC LOG	SAMP	LE DATA	<u>۱</u>		DESCRIPTION
DEPTI (Feet)	Pebbbles Gravel Crs. Sand Mod. Sand Fino Sand Silt Clay Sample #	Blows / 6 ⁻ PID OVA (ppm) CGI (% LEL)	Odor Color	Maistura Parosity (%)	USCS Symbols	
4.0			N \$13			Medium brown SILT some fine sand, i no odor
5 5 f.D		1.0	NB	DR.	SM	Medium brown fine to medium SAND with silt
10						Brown Five SAND, some medium sand, so
15	ו ·		NB	DR		to with silt No recovers 12.5-14
X		25 3.6 504 3.6 40 3 2.7 5057 2.7	N LB N LB	DR	SP	Light Brown fine to coarse SAND, Nov Some five gravel, very dense
2010		45 51-5 51-5	N LB		sP	Light brown five SAUD, some medium coarse sand, trace silt, very dense
25	28	23 2.8	NB	MO	ML	Brown SILT, hard
30-32.5		25 3.3 51.3 4.1	NE	DR	ML	32.5-32.6 Brown CLAY, Organic? Brown SILT, tracefire sand, calrebe in Fractures, nonplastic, weathered bedrock hard
чо	3,0	50-4	NE	DR	M	Brown SILT, trace five sand, hard
Legend · see b	ack	FIELD	BC	RIN	1G	LOG ERM-EnviroClean Northwest,
Signatura	1. Muchal	'. Cu	U			Date <u>5/16/94</u>

	BORING LOG SHE	ET_2_OF_2
PROJECT NO. 94027	B-1/MW-4 DA	TE/TIME STARTED: 5/9/94 1353
PROJECT NAME: Birchmount	BORING NOMECH.	TIME COMPLETED: 5/9/94 1515
LOCATION: Wenatcher, WA	BORING LOCATION: DATE	TOTAL DEPTH: 55
	DRILLING CONTRACTOR	RFACE ELEVATION:
CLIENT NAME: Wells & Wade	BIT SZ/HAMMER/WT/DROP: 300#/30"	WATER DEPTH:
SITE MANAGER: DC	- BIT SZHAMMERWINDROF.	CLOSURE METHOD:
LOGGED BY: <u>AMA</u>	SAMPLE DATA DESCRIPTION	
GRAPHIC LOG	SAMPLE DATA	
and and and and and	Jiows / 6" PLD CGI (% LEL) Odor Color Molsture Porosity (%) USCS Symbols	н. Алаган алагын айтаа
DEPTII (Feel) Boulders Cobbles Pebbles Gravel Crs. Sand Mod. Sand Fino Sand Silt Samplo #	Blows / 6" PID CGI (% LEL Odor Color Molsture Porosity (% USCS Symbols	
	50 NB 5M ML Sand and fine of	h fine sand, trace coarse wavel, hard
× 4	350 N B 5M ML Sana and me	, ,
454	Rown SILT, h	arel
		dense
	N B SM SM	o medium SAND, trace fin
50	Sparmed, very o	o medium SAND, trace fin lense
• * =	3 50- 0.5 N B SM SP grand, veg	L C L Elal
55 11	Bottom of 1	poring at 55.0 feet 5/9/
	FIELD BORING LOG	ERM-EnviroClean Northwest,
Legend - see back		Later cluster
Signature A. Mind	1 unel	Date <u>5/16/94</u>

2 OF _ BORING LOG SHEET _ DATE/TIME STARTED: 5/10/94 0733 PROJECT NO. 94027 BORING NUMBER: B-7 (MW-5) PROJECT NAME: Birchmount DATE/TIME COMPLETED: 5/1494 0843 BORING LOCATION: LOCATION: Wenatchee, WA 49' DRILLING CONTRACTOR: Holf Dalling TOTAL DEPTH: ____ DRILLING METHOD: HSA SURFACE ELEVATION: _ CLIENT NAME: Wells & Wade BIT SZHAMMERWT/DROP: 300th/30 WATER DEPTH: SITE MANAGER: _DC SAMPLE RETRIEVAL SYS: D&M Mad. CLOSURE METHOD: <u>AM</u> LOGGED BY: DESCRIPTION SAMPLE DATA GRAPHIC LOG DEPTII (Feel) Z CGI (% LEL Blows / 6" P10 OVA (ppm) Pebbles Gravel Crs. Sand Vod. Sand Tino Sand Porosity (USCS Symbols Moisturo Sample # Boulders Odor Color Crs. 5 Mod. Fino : Silt Clay Brown 516T and five sand ML DR Ν B X SP Light brown fine to coarse SAND, trace fine gravel, very dense SP Brown fine SAND, some silt, show fine gravel, 5 22 LB PR N 7.0 28 .2 B 8,5 40 BOR N SP Light brown fine to coarse SAND, trace to Some fine gravel, very dense every dense LBDR N. 13 50-0.1 Light brown fine to coarse SAND, some fine 15 sp gravel, very dense NLBIR 30 1.4 18 50-Light brown fine to coarse SAND, very den X 5" . 6 20 59 NLBPR 31 1.5 23 50-X Light brown Fine SAND, show silt, very days 25 SP NLBSM 28 50 ^ 6# 1.5 Brown SILT, trace fire sand, hard <u>30'</u> 30 ML BSM 33 50 Ν Brown SILT, trace fine sand, show course ML Sand and gravel, hand, Calture deposits 35 35 1.5 5M B Ν 38 50 442 40 ERM-EnviroClean Northwest, In FIELD BORING LOG Legend - see back Date 5/16/94 Mi Signature 1/11

PROJECT NO. 94027 BORING LOG SHEET_2_0F_2 PROJECT NAME: Brokendauet BORING NUMBER: B-T (AUL'S) DATETIME STATED: S//// 02/13 LOCATION: Weinschung DATETIME STATED: S//// 02/14 DATETIME STATED: S//// 02/14 CLENT NAME: Weinschung DATETIME STATED: S//// 02/14 DATETIME STATED: S//// 02/14 CLENT NAME: Weinschung DATETIME STATED: S//// 02/14 DATETIME STATED: S//// 02/14 CLENT NAME: Weinschung DATETIME STATED: S//// 02/14 DATETIME STATED: S//// 02/14 CLENT NAME: Weinschung DATETIME STATED: S//// 02/14 DATETIME STATED: S//// 02/14 CLENT NAME: Weinschung DATETIME STATED: S//// 02/14 DATETIME STATED: S//// 02/14 STEMANAGEN: DC BARANGEN: TOROP: 300/// 50'' WATER DEPTH:	-											1									C				SH	FET		2		OF	2		_
PROJECT NAME: BICKLMBUENT BORNALCOATION: DATETIME COMPLETED: 5/14/94 08/3 LOCATON: Weak-like, UA BORNALCOATION: DATETIME COMPLETED: 5/14/94 08/3 DILING CONTRACTOR: Holf Drilling TOTAL DEPTH: 49 / CLENT NAME: Weiks & Uak BITE MANAGER: DC BIT SZHAMMERWITDROP. Seo#/50" WATER DEPTH: LOGGED BY: AMA SAMPLE PATHEVAL SYS: DAM red. OLOSURE METHOD: IOGGED BY: AMA SAMPLE DATA DESCRIPTION IOGGED BY: AMA SAMPLE PATHEVAL SYS: DAM red. OLOSURE METHOD: IOGGED BY: AMA SAMPLE DATA DESCRIPTION INFERMINE ON STATE BY BORNAL SYS: DAM red. OLOSURE METHOD: INFERMINE ON STATE BY BORNAL SYS: DAM red. OLOSURE METHOD: INFERMINE ON STATE BY BORNAL SYS: DAM red. SOURCE SAWD, very durse INFERMINE ON STATE BY BORNAL SYS Barown SILT, word, frachwed, calvake on INFERMINE SYS N IB DR ME Fractures INFERMINE SYS N IB DR ME Fractures INFERMINE SYS Barown SILT, word, frachwed, calvake on INFERMINE SYS Barown SILT, word, fractures INFERMINE SYS Barown SILT, word, frachore		PRC	JEC), 'C	14	02	27	L					;									-5	.									33
LOCATION: Weisselder DRILLING CONTRACTOR: Half Drilling TOTAL DEPTH:		PRC	JEC	T N	AME	.]	3:0	ch	w)	<u>JUY</u>	+			,						5-1	<u> </u>	1.00			ATE		: cc	MPL	ETE	o: <u>5</u> 4	11/94	081	<u>13</u>
CLIENT NAME: Wells & Ubde DRILING METHOD: HSA SUPFACE ELEVATION:		JLOG	ATIC	DN:	W	no	tc	hee	<u>; </u>	JA		-		:	BOR	ING			יזא. [ים			Dril	<u> </u>]}				тот	ÀL D	EPT	H:	49		-
SITE MANAGER: DC LOGGED BY: <u>AMA</u> SAMPLE RETRIEVAL SYS: <u>DLM med.</u> OLOSURE METHOD:		Í				1.	0		<u></u>	h	10	-	C	RILL	,ING NGI		ч гли G Й	ETHO) D: _	Hs/	ŧ			J	ຣເ	IRFAC	CE E	LEVA		N:			
LOGGED BY: <u>AMA</u> SAMPLE RETRIEVAL SYS: <u>DLMI Med.</u> COSUME METROL. COSUME METROL. COSUMETROL. COSUME METROL. COSUME METROL. COSUME METRO									<u>x v</u>	oui	<u>-11</u>	_	BI	T 07/	UA 1	រកដ	- - -		DP:	<u>300</u>	<u>,#/</u>	30	<i>lt</i>			١	TAW	ER D	EPT	ਮ:			-
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Bran SILT, with interview 50 277 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				13.0							4	3	39	1.5						•	Be	ກພາ	ነቲ	ne	S,	AND,	, ve	٠ <u>٦</u> د	lens	e	1		
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SHEET 2 OF 2 BORING LOG PROJECT NO. 94027 DATE/TIME STARTED: 5/9/94 1353 BORING NUMBER: B-6 (MW-4) PROJECT NAME: Birchmount DATE/TIME COMPLETED: 5/9/94 1515 LOCATION: Wenatchee, WA BORING LOCATION: TOTAL DEPTH: 55 DRILLING CONTRACTOR: Holt Drilling DRILLING METHOD: HSA SURFACE ELEVATION: _ CLIENT NAME: Wells & Wade BIT SZHAMMERWT/DROP: 300#/30" WATER DEPTH: _ SITE MANAGER: DC SAMPLE RETRIEVAL SYS: D&M Mod. CLOSURE METHOD: _ LOGGED BY: AMA DESCRIPTION SAMPLE DATA GRAPHIC LOG DEPTII (Feel) CGI (% LEL) Porosity (%) USCS Synthols Blows / 6" PID OVA (ppm) Boulders Cobbles Pebbles Gravel Crs. Sand Mod. Sand Fino Sand Silt Molsture Sample # Odor Color Brown SILT with fine sand, trace coarse ML Sand and fine gravel, hard 43 2" NBSM X ML Brown SILT, hard 45 NBSM 5M Brown Fine SAND with silt, very dense 50-16" 48 48.5 Brown Fire to medium SAND, trace fine Ν BISM 50 SP gravel, very dense BSM 53 50-6'' 0.5 Ν Bottom of boring at 55.0 feet 5/9/94 55 ERM-EnviroClean Northwest, Inc FIELD BORING LOG Legend - see back Date _5/16/9 Signature <u>U</u>.








APPENDIX C

CHEMICAL ANALYTICAL DATA

Laboratory chemical analyses for samples included in this report were completed by Pacific Northern Analytical (PNA) in Redmond, Washington. Laboratory data sheets and chain-of-custody tracking forms are included in this Appendix.

PNA performed quality control/quality assurance (QA/QC) tests on all fuel sample batches completed for this report.

Our review of the QA/QC data provided by PNA did not identify any QA/QC concerns. It is ERM-EC's opinion that the laboratory data are suitable for their intended use.



March 14, 1994

Gary Galloway ERM Northwest 2821 Northup Way Bellevue, WA 98004

Dear Gary:

Enclosed are the analytical results of samples submitted on March 07, 1994 from project Wenatchee.

If you have any questions regarding this report or if you need any other assistance, please do not hesitate to call me.

Sincerely,

Cynthia Rezania Project Chemist

CLR/lh

15314 N.E. 95th Street Redmond, WA 98052-2517 (206) 881-7538 • Fax 881-821



Client: Project Name: Client Sample ID: Laboratory Batch # Units: Analyte	ERM Northwest Wenatchee B3-S8 01076 mg/kg	Sample Result	Date Sampled: Date Received: Date Extracted: Date Analyzed: Sample Matrix: Dilution Factor: Notes	March 3, 1994 March 7, 1994 March 10, 1994 March 11, 1994 Soil 20 Reporting Limit
Total Petroleum Hydras Gasoline		7200		50
(Toluene to dodecane	~)	N.D.	D	0.050
Benzene		N.D.		1.0
Toluene Ethylbenzene		8.2		1.0
m- & p-Xylene		22		1.0
o-Xylene		1.3		1.0

	% Recovery	Notes Acceptance Range
Surrogate Recoveries		65%-111%
Fluorobenzene	86%	con/ 1119/
4-Bromofluorobenzene	90%	63%-111%

Notes D-Data from 1:1 dilution. Sample results have been corrected to their dry weight values. N.D.-Not detected above the reporting limit.

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Client:	ERM Northwest		Date Sampled: Date Received:	March 4, 1994 March 7, 1994
Project Name:	Wenatchee		Date Extracted;	March 10, 1994
Client Sample ID:	B4-S3		Date Analyzed:	March 10, 1994
Laboratory Batch #	01076		Sample Matrix:	Soil
Jnits:	mg/kg		Dilution Factor:	1
Analyte		Sample Result	Notes	Reporting Limit
Total Petroleum Hydr	ocarbons			
s Gasoline		280		2.5
Toluene to dodecane))			
Senzene		N.D.		0.050
oluene		N.D.		0.050
Ethylbenzene		0.19		0.050
1- & p-Xylene		0.51		0.050
-Xylene		N.D.		0.050

Surrogate Recoveries	% Recovery	Notes	Acceptance Range	-
Fluorobenzene	80%		65%-111%	
4-Bromofluorobenzene	93%		63%-111%	•

Notes

Sample results have been corrected to their dry weight values.



Client: Project Name: Client Sample ID:	ERM Northwest Wenatchee B4-S5	<u> </u>	Date Sampled: Date Received: Date Extracted: Date Analyzed:	March 4, 1994 March 7, 1994 March 10, 1994 March 10, 1994
Laboratory Batch # Units:	01076 mg/kg		Sample Matrix: Dilution Factor:	Soil
Analyte		Sample Result	Notes	Reporting Limit
Total Petroleum Hydr as Gasoline (Toluene to dodecane		770	E	25
Benzene		N.D.		0.050
Toluene		N.D.		0.050
Ethylbenzene		0.80		0.050
m- & p-Xylene		2.1		0.050
o-Xylene		0.12		0.050

Surrogate Recoveries	% Recovery	Notes	Acceptance Range	
Fluorobenzene	79%		65%-111%	
4-Bromofluorobenzene	96%		63%-111%	`

Notes	
E-Data from 1:10 dilution.	
Sample results have been corrected to their dry weight values.	
N.DNot detected above the reporting limit.	



DOE WTPH-G with BTEX (EPA 8020) distinction Quality Control Data

Client: Project Name: Sample ID: Laboratory Batch #	ERM Northwest Wenatchee Method Blank 01076	-	Date Extracted: Date Analyzed: Dilution Factor: Units:	March 10, 1994 March 10, 1994 1 mg/kg
Analyte		Sample Result	Notes	Reporting Limit
Total Petroleum Hydr as Gasoline (Toluene to dodecane		N.D.		2.5
Benzene		N.D.		0.050
Toluene		N.D.		0.050
Ethylbenzene		N.D.		0.050
m- & p-Xylene		N.D.		0.050
o-Xylene		N.D.		0.050

Surrogate Recoveries	% Recovery	Notes	Acceptance Range	_
Fluorobenzene	92%		65%-111%	
4-Bromofluorobenzene	95%		63%-111%	、

Notes

N.D.-Not detected above the reporting limit.

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DOE WTPH-G with BTEX (EPA 8020) distinction Quality Control Data

•

Client:	ERM Northwest				Date Extracted:	March 10, 1994
Project Name:	Wenatchee				Date Analyzed:	•
Batch Sample ID:	01076 QA ·				Sample Matrix:	•
Laboratory Batch #	01076				Units:	mg/kg
	Reporting	Sample	Duplicate		Acceptance	
Analyte	Limit	Result	Result	RPD	Limit	Notes
Total Petroleum						
Hydrocarbons						
as Gasoline	2.5	N.D.	N.D.		20%	
Benzene	0.050	N.D.	N.D.	÷-	20%	
Toluene	0.050	N.D.	N.D.		20%	
Ethylbenzene	0.050	N.D.	N.D.		20%	
Luyioenzene	0.050	N.D .	n,D.		2076	
m- & p-Xylene	0.050	N.D.	N.D.		20%	
1 2						
o-Xylene	0.050	N.D.	N.D.		20%	
	Spike	Spike	Acceptance	Spike Dup		Acceptance
Analyte	Added	Recovery	Range	Recovery	RPD	Limit
Dansana	1.0	7/0/	COD/ 1400/	770/	10/	0.04/
Benzene	1.0	76%	60%-140%	77%	1%	20%
o-Xylene	1.0	79%	60%-140%	80%	1%	20%
	1.0	(2/0	0070 11070	0070	170	2070

Notes

N.D.-Not detected above the reporting limit.

•



Client: Project Name: Client Sample ID: Laboratory Batch # Units: Analyte	ERM Northwest Wenatchee EC-MW-1 01076 ug/L	Sample Result	Date Sampled: Date Received: Date Analyzed: Sample Matrix: Dilution Factor: Notes	March 4, 1994 March 7, 1994 March 10, 1994 Water 1 Reporting Limit
Total Petroleum Hyd as Gasoline (Toluene to dodecan		N.D.		50
	-,	N.D.		1
Benzene		1		1
Toluene				1
Ethylbenzene		N.D.		1
m- & p-Xylene		N.D.		1
o-Xylene		N.D.		ł

	% Recovery	Notes	Acceptance Range	-
Surrogate Recoveries	///////////////////////////////////////		71%-118%	
Fluorobenzene	88%			
Fluorooclizeno	008/		70%-120%	
4-Bromofluorobenzene	90%			

Notes



Client:	ERM Northwest		Date Sampled:	March 5, 1994
Project Name:	Wenatchee		Date Received:	March 7, 1994
Client Sample ID:	EC-MW-2		Date Analyzed:	March 10, 1994
Laboratory Batch #	01076		Sample Matrix:	Water
Units:	ug/L		Dilution Factor:	
Analyte		Sample Result	Notes	Reporting Limit
Total Petroleum Hydi	rocarbons			
as Gasoline		120		50
Toluene to dodecane)			
Benzene		N.D.		1
Foluene		5		1
Ethylbenzene		N.D.		1
m- & p-Xylene		6		1
o-Xylene		2		1

Surrogate Recoveries	% Recovery	Notes	Acceptance Range	-
Fluorobenzene	85%		71%-118%	
4-Bromofluorobenzene	. 88%		70%-120%	• •

Notes

N.D.-Not detected above the reporting limit.

Page 9 of 31



Client: Project Name: Client Sample ID: Laboratory Batch # Units: Analyte	ERM Northwest Wenatchee EC-MW-3 01076 ug/L	Sample Result	Date Sampled: Date Received: Date Analyzed: Sample Matrix: Dilution Factor: Notes	March 5, 1994 March 7, 1994 March 10, 1994 Water 1 Reporting Limit
Total Petroleum Hyd as Gasoline (Toluene to dodecane		13,000	G	500
	<i>。</i>)	17		1
Benzene		2		1
Toluene		63		1
Ethylbenzene		120	G	10
m- & p-Xylene o-Xylene		5		1

	% Recovery	Notes	Acceptance Range	
Surrogate Recoveries		_	71%-118%	
Fluorobenzene	90%			
- • · · · ·	88%		70%-120%	•
4-Bromofluorobenzene				

Notes

G-Data from 1:10 dilution.



Client: Project Name: Client Sample ID: Laboratory Batch # Units: Analyte	ERM Northwest Wenatchee B4-W1 01076 ug/L	Sample Result	Date Sampled: Date Received: Date Analyzed: Sample Matrix: Dilution Factor: Notes	March 4, 1994 March 7, 1994 March 10, 1994 Water 10 Reporting Limit
Total Petroleum Hyd as Gasoline		13,000		500
(Toluene to dodecan	5)	5	F	5
Benzene Toluene		5	F	5
Ethylbenzene		67		10
m- & p-Xylene		170		10
o-Xylene		6	F	5

	% Recovery	Notes	Acceptance Range
Surrogate Recoveries		—	71%-118%
Fluorobenzene	80%		
Flubiobenzeno	0.407		70%-120%
4-Bromofluorobenzene	84%		

Notes

F-Data from 1:5 dilution.



DOE WTPH-G with BTEX (EPA 8020) distinction Quality Control Data

Client: Project Name: Sample ID: Laboratory Batch #	ERM Northwest Wenatchee Method Blank 2 01076	Sample Result	Date Analyzed: Dilution Factor: Units: Notes	March 10, 1994 1 ug/L Reporting Limit
Analyte Total Petroleum Hyd as Gasoline (Toluene to dodecan		N.D.		50
Benzene		N.D.		1
Toluene		N.D.		1
Ethylbenzene		N.D.		1
m- & p-Xylene		N.D.		1
o-Xylene		N.D.		l

	. % Recovery	Notes	Acceptance Range	-
Surrogate Recoveries	/0100000/		71%-118%	
Thereshonzene	85%		1110 12010	
Fluorobenzene	0.001		70%-120%	
4-Bromofluorobenzene	86%			

Notes



DOE WTPH-G with BTEX (EPA 8020) distinction Quality Control Data

Client: Project Name: Batch Sample ID:	ERM Northwest Wenatchee 01076 QA2				Date Analyzed: Sample Matrix: Units:	March 10, 1994 Water ug/L
Laboratory Batch #	01076 Reporting Limit	Sample Result	Duplicate Result	RPD	Acceptance Limit	Notes
Analyte						
Total Petroleum Hydrocarbons as Gasoline	50	N.D.	N.D.		20%	
Benzene	1	N.D.	N.D.		20%	
Toluene	1	. 1	1	<1%	20%	
	1	N.D.	N.D.		20%	
Ethylbenzene	1	N.D.	N.D.		20%	
m- & p-Xylene	1	N.D.	N.D.		20%	
0-Xylene	Spike Added	Spike Recovery	Acceptance Range	Spike Du Recover		Acceptance Limit
Analyte	Auded			92%	1%	20%
Benzene	20	93%	75%-125%			20%
o-Xylene	20	92%	75%-125%	91%	1%	2070

Notes



Client: Project Name: Client Sample ID: Laboratory Batch # Units:	ERM Northwest Wenatchee B1-S5 01076 mg/kg	Sample Result	Date Sampled: Date Received: Date Extracted: Date Analyzed: Sample Matrix: Dilution Factor: Notes	March 2, 1994 March 7, 1994 March 8, 1994 March 8, 1994 Soil 0.5/2 Reporting Limit
Analyte		Sample Result		
Total Petroleum Hydr as gasoline (Toluene to dodecane		N.D.		20
Total Petroleum Hyd as diesel fuel (Dodecane to tetraco		N.D.		50
Total Petroleum Hyc as lube oil or related (Beyond tetracosane	products	N.D.		100

	% Recovery	Notes Acceptance Range
Surrogate Recovery		65%-144%
o-terphenyl	112%	

Notes

Sample results have been corrected to their dry weight values. N.D.-Not detected above the reporting limit. •



			Date Sampled:	March 2, 1994
			•	•
Client:	ERM Northwest		Date Received:	March 7, 1994
Project Name:	Wenatchee		Date Extracted:	March 8, 1994
Client Sample ID:	B2-S10		Date Analyzed:	March 8, 1994
Laboratory Batch #	01076		Sample Matrix:	Soil
Units:	mg/kg		Dilution Factor:	0.5/2
Analyte		Sample Result	Notes	Reporting Limit
Total Petroleum Hydr as gasoline (Toluene to dodecane		N.D.		20
Total Petroleum Hydr as diesel fuel (Dodecane to tetracos		N.D.		50
Total Petroleum Hyd as lube oil or related (Beyond tetracosane)	products	N.D.		100

Surrogate Recovery	· % Recovery	Notes	Acceptance Range	
o-terphenyl	106%		65%-144%	
				•
				•

Notes

Sample results have been corrected to their dry weight values. N.D.-Not detected above the reporting limit.



		Date Sampled:	March 3, 1994
ERM Northwest		Date Received:	March 7, 1994
Wenatchee		Date Extracted:	March 8, 1994
B3-S8		Date Analyzed:	March 8, 1994
01076		Sample Matrix:	Soil
mg/kg		Dilution Factor:	0.5/2
	Sample Result	Notes	Reporting Limit
rocarbons)	Detected		20
ocarbons ane)	N.D.		50
ocarbons products	N.D.		100
	Wenatchee B3-S8 01076 mg/kg ocarbons) ocarbons ane) ocarbons	Wenatchee B3-S8 01076 mg/kg Sample Result ocarbons Detected) ocarbons N.D. ane) ocarbons	ERM Northwest Date Received: Wenatchee Date Extracted: B3-S8 Date Analyzed: 01076 Sample Matrix: mg/kg Dilution Factor: Sample Result Notes ocarbons Detected) ocarbons N.D. ane)

Surrogate Recovery	% Recovery	Notes	Acceptance Range
o-terphenyl	108%		65%-144%

Notes

Sample results have been corrected to their dry weight values. N.D.-Not detected above the reporting limit. .



Client: Project Name: Client Sample ID: Laboratory Batch # Units: Analyte	ERM Northwest Wenatchee B3-S10 01076 mg/kg	Sample Result	Date Sampled: Date Received: Date Extracted: Date Analyzed: Sample Matrix: Dilution Factor: Notes	March 3, 1994 March 7, 1994 March 8, 1994 March 8, 1994 Soil 0.5/2 Reporting Limit
Total Petroleum Hyd as gasoline (Toluene to dodecan		N.D.		20
Total Petroleum Hy as diesel fuel (Dodecane to tetrac		N.D.		50
Total Petroleum Hy as lube oil or relate (Beyond tetracosan	d products	N.D.		100

· % Recovery	Notes Acceptance Range
Surrogate Recovery 76 Recovery 103%	65%-144%
o-terphenyl	

Notes

Sample results have been corrected to their dry weight values. N.D.-Not detected above the reporting limit.

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Page 17 of 31

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Client: Project Name: Client Sample ID: Laboratory Batch # Units: Analyte	ERM Northwest Wenatchee B4-S3 01076 mg/kg	Sample Result	Date Sampled: Date Received: Date Extracted: Date Analyzed: Sample Matrix: Dilution Factor: Notes	March 4, 1994 March 7, 1994 March 8, 1994 March 8, 1994 Soil 0.5/2 Reporting Limit
Total Petroleum Hydras gasoline (Toluene to dodecane		Detected		20
Total Petroleum Hyd as diesel fuel (Dodecane to tetracc		N.D.		50
Total Petroleum Hyd as lube oil or related (Beyond tetracosand	l products	Detected		100

-	% Recovery No	tes Acceptance Range
Surrogate Recovery	114%	65%-144%
o-terphenyl	11470	

Notes

Sample results have been corrected to their dry weight values. N.D.-Not detected above the reporting limit.

Page 18 of 31



Client: Project Name: Client Sample ID: Laboratory Batch # Units: Analyte	ERM Northwest Wenatchee B4-S5 01076 mg/kg	Sample Result	Date Sampled: Date Received: Date Extracted: Date Analyzed: Sample Matrix: Dilution Factor: Notes	March 4, 1994 March 7, 1994 March 8, 1994 March 8, 1994 Soil 0.5/2 Reporting Limit
Total Petroleum Hyd as gasoline (Toluene to dodecan		Detected		20
Total Petroleum Hyd as diesel fuel (Dodecane to tetrace		N.D.		50
Total Petroleum Hy as lube oil or relate (Beyond tetracosan	d products	N.D.		100

	% Recovery	Notes Acceptance Range	
Surrogate Recovery	108%	65%-144%	
o-terphenyl	10870		

Notes

Sample results have been corrected to their dry weight values. N.D.-Not detected above the reporting limit.

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DOE WTPH-HCID Quality Control Data

Client: Project Name: Sample ID: Laboratory Batch #	ERM Northwest Wenatchee Method Blank 01076		Date Extracted: Date Analyzed: Dilution Factor:	March 8, 1994 March 8, 1994 0.5/2
Units:	mg/kg	Sample Result	Notes	Reporting Limit
Analyte Total Petroleum Hyd as gasoline (Toluene to dodecan		N.D.		20
Total Petroleum Hy as diesel fuel (Dodecane to tetrac		N.D.		50
Total Petroleum Hy as lube oil or relate (Beyond tetracosar	d products	N.D.		100

	% Recovery	Notes Acceptance Range
Surrogate Recovery	109%	65%-144%
o-terphenyl		

Notes

N.D.-Not detected above the reporting limit.



DOE WTPH-D

Surrogate Recovery % Recovery 50%-150%	Client: Project Name: Client Sample ID: Laboratory Batch # Units:	ERM Northwest Wenatchee EC-MW-1 01076 mg/L	Sample Result	Date Sampled: Date Received: Date Extracted: Date Analyzed: Sample Matrix: Dilution Factor: Notes	March 4, 1994 March 7, 1994 March 10, 1994 March 10, 1994 Water 1 Reporting Limit
Surrogate Recovery Notes Acceptance Ran	Total Petroleum Hyd as Diesel Fuel				0.15
Surrogate Recovery Notes Acceptance Ran					
Surrogate Recovery Notes Acceptance Ran					
Surrogate Recovery % Recovery 50%-150%				÷	
50%-150%			% Recovery	Notes	Acceptance Range
o-terphenyl	o-terphenyl	<u>}</u>	95%		50%-150%

Notes



as Diesel Fuel

(Dodecane to tetracosane)

DOE WTPH-D

Client: Project Name: Client Sample ID: Laboratory Batch # Units: Analyte	ERM Northwest Wenatchee EC-MW-2 01076 mg/L	Sample Result	Date Received:	March 5, 1994 March 7, 1994 March 10, 1994 March 10, 1994 Water 1 Reporting Limit
Total Petroleum Hyd	rocarbons	0.23		0.15

	% Recovery	. Notes	Acceptance Range
Surrogate Recovery			50%-150%
o-terphenyl	93%		

Page 22 of 31



DOE WTPH-D

Client: Project Name: Client Sample ID: Laboratory Batch # Units: Analyte	ERM Northwest Wenatchee EC-MW-3 01076 mg/L	Sample Result	Date Sampled: Date Received: Date Extracted: Date Analyzed: Sample Matrix: Dilution Factor: Notes	March 5, 1994 March 7, 1994 March 10, 1994 March 10, 1994 Water 1 Reporting Limit
Total Petroleum Hyd	rocarbons	0.30		0.15

as Diesel Fuel (Dodecane to tetracosane)

Surrogate Recovery	% Recovery	Notes	Acceptance Range
	70%		50%-150%
o-terphenyl			



DOE WTPH-D

Client: Project Name: Client Sample ID: Laboratory Batch # Units:	ERM Northwest Wenatchee B4-W1 01076 mg/L	Sample Result	Date Sampled: Date Received: Date Extracted: Date Analyzed: Sample Matrix: Dilution Factor: Notes	March 4, 1994 March 7, 1994 March 10, 1994 March 10, 1994 Water 1 Reporting Limit
Analyte		Sample Result		
Total Petroleum Hyd as Diesel Fuel (Dodecane to tetracc		0.63		0.15

	% Recovery	Notes Acceptance Range
Surrogate Recovery		50%-150%
o-terphenyl	53%	

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Page 24 of 31

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DOE WTPH-D Quality Control Data

ient: oject Name: ample ID:	ERM Northw Wenatchee Method Blan 01076			I	Date Extracted: Date Analyzed: Dilution Factor: Units:	March 11, 1994 March 11, 1994 1 mg/kg
aboratory Batch #		S	ample Result		Notes	Reporting Limit
nalyte otal Petroleum Hydr S Diesel Fuel Dodecane to tetracos			N.D.			15
urrogate Recovery			% Recovery		Notes	Acceptance Range
-terphenyl			99%			50%-150%
	01084 QA mg/kg			Durlinsto	Date Extracted: Date Analyzed: Sample Matrix:	March 11, 1994 Soil
Units:		Reporting Limit	Sample Result	Duplicate Result	Date Analyzed: Sample Matrix:	March 11, 1994
Batch Sample ID: Units: Analyte Total Petroleum Hydrocarbons as Diesel Fuel	mg/kg		•	-	Date Analyzed: Sample Matrix:	March 11, 1994 Soil Acceptance Limit 24%
Units: Analyte Total Petroleum Hydrocarbons	mg/kg	Limit	Result	Result	Date Analyzed: Sample Matrix: RPD	March 11, 1994 Soil Acceptance Limit

Notes



DOE WTPH-D Quality Control Data

Client: Project Name: Sample ID:	ERM Northwe Wenatchee Method Blan 01076]	Date Extracted: Date Analyzed: Dilution Factor: Units:	March 10, 1994 March 10, 1994 1 mg/L Reporting Limit
Laboratory Batch #		()	Sample Result		Notes	Reporting Linut
Analyte Total Petroleum Hydro as Diesel Fuel (Dodecane to tetracos)			N,D.			0.15
			% Recovery _		Notes	Acceptance Range
Surrogate Recovery						50%-150%
o-terphenyl			95%			
Batch Sample ID: Units:	01076 QA mg/L	Reporting Limit	Sample Result	Duplicate Result	Date Extracted: Date Analyzed: Sample Matrix RPD	March 10, 1994
Analyte Total Petroleum Hydrocarbons as Diesel Fuel (Dodecane to tetrace	osane)	0.15	0.63	0.73	15%	24%
Batch Sample ID:	01076 QA Spike Added		Spike Recovery		Acceptance Range)
Total Petroleum Hydrocarbons as Diesel Fuel (Dodecane to tetrac	1.25 cosane)		108%		60%-140%	ó

Notes



DOE WTPH-D Extended

Client: Project Name: Client Sample ID: Laboratory Batch # Units: Analyte	ERM Northwest Wenatchee B4-S3 01076 mg/kg	Sample Result	Date Received: Date Extracted: Date Analyzed: Sample Matrix: Dilution Factor: Notes	March 7, 1994 March 11, 1994 March 14, 1994 Soil 1 Reporting Limit
Total Petroleum Hyd as Diesel Fuel (Dodecane to tetraco		71		15
Total Petroleum Hyd as Motor Oil (Beyond tetracosane		76		50
_		% Recovery	Notes	Acceptance Range
Surrogate Recover	<u>y</u>	98%		50%-150%

Notes

Sample results have been corrected to their dry weight values.



DOE WTPH-D Extended Quality Control Data

Client: Project Name: Sample ID:	ERM Northwe Wenatchee Method Blan 01076			I I	Date Extracted: Date Analyzed: Dilution Factor: Units:	March 11, 1994 March 11, 1994 1 mg/kg Reporting Limit
aboratory Batch #	01070	S	ample Result		Notes	Reporting Exhite
Analyte Fotal Petroleum Hydro as Diesel Fuel (Dodecane to tetracos)			N.D.			15
Total Petroleum Hydr as Motor Oil (Beyond tetracosane)			N.D.			50
			% Recovery		Notes	Acceptance Range
Surrogate Recovery			% Recovery			50%-150%
o-terphenyl			99%		Date Extracted	
Batch Sample ID:	01084 QA		_		Date Analyzed Sample Matrix	March 11, 1994
Units:	mg/kg		Sample	Duplicate		Acceptance
Analyte		Reporting Limit	Result	Result	RPD	Limit
Total Petroleum Hydrocarbons as Diesel Fuel		15	N.D.	N.D.		24%
Total Petroleum Hydrocarbons as Motor Oil		50	N.D.	N.D.		24%
Analyte	Spike Added	Spike Recovery	Acceptance Range	Spike Du Recover		Acceptance Limit
Total Petroleum Hydrocarbons as Diesel Fuel	125	112%	60%-140%	109%	3%	27%

N.D.-Not detected above the reporting limit.

Notes



Moisture Content Report

Client: Project Name: Laboratory Batch # Units:	ERM Northwest Wenatchee 01076 % Moisture		Date Sampled: Date Received: Date Analyzed: Sample Matrix:	March 3, 1994 March 7, 1994 March 8, 1994 Soil
Client Sample ID		Sample Result	Notes	Reporting Limit
B1-\$5		3%		1%
B1-55 B2-S10		18%		1%
B2-S10 B3-S8		15%		1%
B3-S10		23%		1%
B3-510 B4-S3		10%		1%
B4-35 B4-S5		19%		1%
LW-SP1		5%	•	1%
LW-SP2		5%		1%

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May 18, 1994

Don Clabaugh ERM Northwest 2821 Northup Way Bellevue, WA 98004

Dear Don:

Enclosed are the analytical results of samples submitted on May 11, 1994 from project Wells and Wade, 9404.11.

If you have any questions regarding this report or if you need any other assistance, please do not hesitate to call me.

Sincerely,

fi S Penjan

Cynthia Rezania Project Chemist

CLR/lh

15314 N.E. 95th Street Redmond, WA 98052-2517 (206) 881-7538 • Fax 881-82

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DOE WTPH-G

Client:	ERM Northwest		Date Sampled:	May 9, 1994
Project Name:	Wells and Wade		Date Received:	May 11, 1994
Project Number:	9404.11		Date Extracted:	May 12, 1994
Client Sample ID:	B-5-33		Date Analyzed:	May 12, 1994
Laboratory Batch #	01255		Sample Matrix:	
Units:	mg/kg		Dilution Factor:	1
Analyte		Sample Result	Notes	Reporting Limit

Total Petroleum Hydrocarbons as Gasoline (Toluene to dodecane)

N.D.

2.5

Surrogate Recoveries	% Recovery	Notes	Acceptance Range	
Fluorobenzene	81%		65%-111%	
4-Bromofluorobenzene	90%		63%-111%	

Notes

Sample results have been corrected to their dry weight values. N.D.-Not detected above the reporting limit.



DOE WTPH-G

Client: Project Name: Project Number: Client Sample ID: Laboratory Batch # Units: Analyte	ERM Northwest Wells and Wade 9404.11 B-6-8 01255 mg/kg	Sample Result	May 12, 1994 Soil
Total Petroleum Hyd	rocarbons	N.D.	2.5

às Gasoline `(Toluene to dodecane)

Surrogate Recoveries% RecoveryNotesAcceptance RangeFluorobenzene87%65%-111%4-Bromofluorobenzene92%63%-111%

Notes

Sample results have been corrected to their dry weight values. N.D.-Not detected above the reporting limit.


DOE WTPH-G

Client: Project Name: Project Number: Client Sample ID: Laboratory Batch #	ERM Northwest Wells and Wade 9404.11 B-6-53 01255		Date Received: Date Extracted:	May 12, 1994 Soil 1
Units: Analyte	mg/kg	Sample Result	Notes	Reporting Limit

N.D.

Total Petroleum Hydrocarbons

as Gasoline (Toluene to dodecane) 2.5

	% Recovery	Notes	Acceptance Range
Surrogate Recoveries			65%-111%
Fluorobenzene	83%		63%-111%
4-Bromofluorobenzene	89%		0370-11170

Notes



DOE WTPH-G

Project Number: Client Sample ID: Laboratory Batch #	B-7-48 01255		Date Analyzed: Sample Matrix:	May 12, 1994 Soil
Units:	mg/kg	· · · · · · · · · · · · · · · · · · ·	Dilution Factor:	1
Analyte		Sample Result	Notes	Reporting Limit

as Gasoline (Toluene to dodecane)

Surrogate Recoveries	% Recovery	Notes	Acceptance Range
Fluorobenzene	85%		65%-111%
4-Bromofluorobenzene	92%		63%-111%

Notes

Sample results have been corrected to their dry weight values. N.D.-Not detected above the reporting limit.

Page 4 of 18

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Client: Project Name: Project Number: Client Sample ID: Laboratory Batch # Units: Analyte	ERM Northwest Wells and Wade 9404.11 B5 01255 ug/L	Sample Result	Date Sampled: Date Received: Date Analyzed: Sample Matrix: Dilution Factor: Notes	May 9, 1994 May 11, 1994 May 16, 1994 Water 1 Reporting Limit
Total Petroleum Hyd		N.D.		50
(Toluene to dodecan		N.D.		1
Benzene		N.D.		1
Toluene		N.D.		1
Ethylbenzene		N.D.		1
m- & p-Xylene o-Xylene		N.D.		1

	% Recovery	Notes Acceptance Range
Surrogate Recoveries		71%-118%
Fluorobenzene	94%	
Fluoroocnizente	97%	70%-120%
4-Bromofluorobenzene	9170	

Notes



Client: Project Name: Project Number: Client Sample ID: Laboratory Batch # Units: Analyte	ERM Northwest Wells and Wade 9404.11 B-5-43 01255 mg/kg	Sample Result	Date Sampled: Date Received: Date Extracted: Date Analyzed: Sample Matrix: Dilution Factor: Notes	May 9, 1994 May 11, 1994 May 12, 1994 May 12, 1994 Soil 1 Reporting Limit
Total Petroleum Hydras Gasoline		N.D.		2.5
(Toluene to dodecane		N.D.		0.050
Benzene Toluene		N.D.		0.050
Ethylbenzene		N.D.		0.050
m- & p-Xylene		N.D.		0.050
o-Xylene		N.D.		. 0.050

	% Recovery	Notes Acceptance Range
Surrogate Recoveries		65%-111%
Fluorobenzene	89%	
	96%	63%-111%
4-Bromofluorobenzene		

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Notes

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Sample results have been corrected to their dry weight values. N.D.-Not detected above the reporting limit.

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Client: Project Name: Project Number: Client Sample ID: Laboratory Batch # Units: Analyte	ERM Northwest Wells and Wade 9404.11 B-6-33 01255 mg/kg	Sample Result	Date Received: Date Extracted: Date Analyzed:	May 9, 1994 May 11, 1994 May 12, 1994 May 12, 1994 Soil 1 Reporting Limit
Total Petroleum Hyd as Gasoline		N.D.		2.5
(Toluene to dodecan	le)	N.D.		0.050
Benzene				0.050
Toluene		N.D.		0.050
Ethylbenzene		N.D.		0.050
m- & p-Xylene		N.D.		0.050
o-Xylene		N.D.		v

	% Recovery	Notes	Acceptance Range
Surrogate Recoveries		<u></u>	65%-111%
Fluorobenzene	75%		63%-111%
4-Bromofluorobenzene	81%		

Notes



Client: Project Name: Project Number: Client Sample ID: Laboratory Batch # Units: Analyte	DOE WTPH- ERM Northwest Wells and Wade 9404.11 B-7-33 01255 mg/kg	G with BTEX (2007) Sample Result	Date Sampled: Date Received: Date Extracted: Date Analyzed: Sample Matrix: Dilution Factor: Notes	May 10, 1994 May 11, 1994 May 12, 1994 May 12, 1994 Soil 1 Reporting Limit 2.5
Total Petroleum Hy		Ŋ.D.		
(Toluene to dodeca	ne)	N.D.		0.050
Benzene		N.D.		0.050
Toluene		N.D.		0.050
Ethylbenzene		N.D.		0.050
m- & p-Xylene		N.D.		
o-Xylene				

	l	Notes Acceptance Range
	% Recovery	65%-111%
Surrogate Recoveries	76%	63%-111%
Fluorobenzene	80%	0570 22-27
4-Bromofluorobenzene		



DOE WTPH-G with BTEX (EPA 8020) distinction Quality Control Data

Client:	ERM Northwest			
Project Name:	Wells and Wade		Date Extracted:	May 12, 1994
Project Number:	9404.11		Date Analyzed:	May 12, 1994
Sample ID:	Method Blank		Dilution Factor:	1
Laboratory Batch #	01255		Units:	mg/kg
Analyte		Sample Result	Notes	Reporting Limit
Total Petroleum Hydr	rocarbons			
as Gasoline		N.D.		2.5
(Toluene to dodecane	:)			
Benzene		N.D.		0.050
Toluene		N.D.	,	0.050
Ethylbenzene		N.D.		0.050
m- & p-Xylene		N.D.		0.050
o-Xylene		N.D.		0.050

Surrogate Recoveries	% Recovery	Notes	Acceptance Range
Fluorobenzene	96%		65%-111%
4-Bromofluorobenzene	94%		63%-111%

Notes



ERM Northwest Client: Date Extracted: May 12, 1994 Wells and Wade Project Name: Date Analyzed: May 12, 1994 9404.11 Project Number: Sample Matrix: Soil Batch Sample ID: 01250 QA mg/kg Units: 01255 Laboratory Batch # Acceptance Duplicate Sample Reporting Limit Notes RPD Result Limit Result Analyte Total Petroleum Hydrocarbons 20% N.D. 2.5 N.D. as Gasoline 20% 0.050 N.D. N.D. Benzene 20% N.D. N.D. 0.050 Toluene 20% N.D. N.D. 0.050 Ethylbenzene 20% N.D. N.D. 0.050 m- & p-Xylene 20% 0.050 N.D. N.D. o-Xylene Spike Dup Acceptance Acceptance Spike Spike Limit RPD Range Recovery Added Recovery Analyte 85% 1% 20% 84% 60%-140% 1.0 Benzene 20% 87% 2% 85% 60%-140% 1.0 o-Xylene

DOE WTPH-G with BTEX (EPA 8020) distinction Quality Control Data

Notes



DOE WTPH-G with BTEX (EPA 8020) distinction Quality Control Data

Project Name: Wells Devicet Number: 9404	hod Blank	Date Analyzed: Dilution Factor: Units: Notes	May 16, 1994 1 ug/L Reporting Limit
Total Petroleum Hydrocarbo as Gasoline (Toluene to dodecane)	ons N.D.		50
•	N.D.		_ 1
Benzene	N.D.		1
Toluene			1
Ethylbenzene	N.D.		
	N.D.		1
m- & p-Xylene			1
o-Xylene	N.D.		

	% Recovery	Notes	Acceptance Range
Surrogate Recoveries			71%-118%
Fluorobenzene	86%		70%-120%
4-Bromofluorobenzene	88%		10/0-12070

Notes

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DOE WTPH-G with BTEX (EPA 8020) distinction Quality Control Data

		Quint				
Client: Project Name: Project Number:	ERM Northwest Wells and Wade 9404.11 01255 QA			S	ample Matrix:	May 16, 1994 Water ug/L
Batch Sample ID: Laboratory Batch #	01255	Sample	Duplicate	RPD	Acceptance Limit	Notes
Analyte	Reporting Limit	Result	Result	MD		
Total Petroleum Hydrocarbons	<i>.</i>	N.D.	N.D.		20%	
as Gasoline	50	N.D.	N.D.		20%	
Benzene	1	N.D.	N.D.		20%	·
Toluene	1	N.D.	N.D.		20%	
Ethylbenzene	1	N.D.	N.D.		20%	
m- & p-Xylene	1	N.D.	N.D.		20%	
o-Xylene	1	Spike	Acceptance	Spike Du		Acceptance Limit
Analyte	Spike Added	Recovery	Range	Recover		20%
	20	102%	75%-125%	105%	,	20%
Benzene	20	130%	75%-125%	105%	0 270	
- VUICHE						

o-Xylene

Notes



DOE WTPH-HCID

Client: Project Name: Project Number: Client Sample ID: Laboratory Batch #	ERM Northwest Wells and Wade 9404.11 B-1-9.5 01255		Date Sampled: Date Received: Date Extracted: Date Analyzed: Sample Matrix: Dilution Factor:	May 10, 1994 May 11, 1994 May 17, 1994 May 17, 1994 Soil 0.5/2
Units:	mg/kg	Sample Result	Notes	Reporting Limit
Analyte Total Petroleum Hyd as gasoline (Toluene to dodecane		Detected		20
Total Petroleum Hyd as diesel fuel ' (Dodecane to tetracc		Detected		50
Total Petroleum Hyd as lube oil or related (Beyond tetracosane	products	N.D.		100

Surrogate Recovery	% Recovery	Notes	Acceptance Range
Surlogato recordary		т	65%-144%
o-terphenyl		*	

Notes I-Interferences prevented quantitation of the surrogate recovery. Sample results have been corrected to their dry weight values. N.D.-Not detected above the reporting limit.



DOE WTPH-HCID

Client: Project Name: Project Number: Client Sample ID: Laboratory Batch #	ERM Northwest Wells and Wade 9404.11 B-1-25.5 01255		Date Sampled: Date Received: Date Extracted: Date Analyzed: Sample Matrix:	May 10, 1994 May 11, 1994 May 17, 1994 May 17, 1994 Soil
Units: Analyte	mg/kg	Sample Result	Dilution Factor: Notes	0.5/2 Reporting Limit
Total Petroleum Hydr as gasoline (Toiuene to dodecane		Detected		20
Total Petroleum Hyd as diesel fuel (Dodecane to tetracos		Detected		50
Total Petroleum Hyd as lube oil or related (Beyond tetracosane)	products	N.D.		100

Surrogate Recovery	% Recovery	Notes	Acceptance Range	→ .
o-terphenyl	94%		65%-144%	

Notes



DOE WTPH-HCID Quality Control Data

Client: Project Name: Project Number: Sample ID: Laboratory Batch # Units:	ERM Northwest Wells and Wade 9404.11 Method Blank 01255 mg/kg		Date Extracted: Date Analyzed: Dilution Factor:	May 17, 1994 May 17, 1994 0.5/2
Analyte		Sample Result	Notes	Reporting Limit
Total Petroleum Hydr as gasoline (Toluene to dodecane		N.D.		20
Total Petroleum Hyd as diesel fuel (Dodecane to tetracos		N.D.		50
Total Petroleum Hyd as lube oil or related (Beyond tetracosane)	products	N.D.		100

Surrogate Recovery	% Recovery	Notes	Acceptance Range
o-terphenyl	95%		65%-144%

Notes



DOE WTPH-D

Client:	ERM Northwest		Date Sampled:	May 9, 1994
Project Name:	Wells and Wade		Date Received:	May 11, 1994
Project Number:	9404.11		Date Extracted:	May 16, 1994
Client Sample ID:	B-5		Date Analyzed:	May 16, 1994
Laboratory Batch #	01255		Sample Matrix:	Water
Units:	mg/L		Dilution Factor:	1
Analyte		Sample Result	Notes	Reporting Limit

Total Petroleum Hydrocarbons as Diesel Fuel (Dodecane to tetracosane)

N.D.

0.25

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Surrogate Recovery	% Recovery	Notes	Acceptance Range
o-terphenyl	85%		50%-150%

Notes

N.D.-Not detected above the reporting limit.

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May 16, 1994 ERM Northwest Date Extracted: May 17, 1994 Client: Wells and Wade Date Analyzed: Project Name: Dilution Factor: 1 9404.11 Project Number: mg/L Method Blank Units: Reporting Limit Sample ID: Notes Laboratory Batch # 01255 Sample Result Analyte 0.25 Total Petroleum Hydrocarbons N.D. as Diesel Fuel (Dodecane to tetracosane) Acceptance Range Notes % Recovery Surrogate Recovery 50%-150% 100% o-terphenyl May 16, 1994 Date Extracted: May 16, 1994 Date Analyzed: Water Sample Matrix: 01262 QA Batch Sample ID: Acceptance mg/L Duplicate Units: Sample Limit Reporting RPD Result Result Limit Analyte Total Petroleum 24% 10% 21 Hydrocarbons 19 2.5 as Diesel Fuel (Dodecane to tetracosane) Blank Spike Acceptance Batch Sample ID: Spike Spike Range Recovery Added Analyte Total Petroleum 60%-140% Hydrocarbons 133% 1.0 as Diesel Fuel (Dodecane to tetracosane)

DOE WTPH-D Quality Control Data

Notes

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Pacific Northern Analytical

Chain of Custody/Analysis Request Form

Distribution: White - Return to Originator; low - Lab; Pink - Retained by Originator

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